AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Previously Presented) A jet engine for a mobile platform, the engine comprising:

a gimbal ring configured to pivot relative to the jet engine about a first axis;

a nozzle rim having a flange portion pivotally coupled to the gimbal ring, the nozzle rim being configured to pivot relative to the gimbal ring about a second axis;

a first actuator yoke plate that operatively engages the nozzle rim to cause the gimbal ring and nozzle rim to pivot relative to the jet engine about the first axis;

a second actuator yoke plate that operatively engages the nozzle rim to cause the nozzle rim to pivot relative to the gimbal ring about the second axis;

a bendable duct having an outlet end that is received in an internal shoulder within the nozzle rim, the bendable duct defining a conduit in which exhaust flow generated by the jet engine is received and delivered directly to the nozzle rim; and

first and second drive actuators for controlling the movement of the first and second actuator yoke plates to allow pivoting of the nozzle rim about the first axis and the second axis for changing a vector at which the exhaust flow is discharged from the nozzle rim.

2. (Previously Presented) The engine of claim 1, wherein the gimbal joint is coupled to supporting structure to allow pivoting of the gimbal ring relative to the supporting structure and the jet engine.

3-5. (Cancelled)

6. (Original) The engine of claim 1, wherein the first axis is generally perpendicular to the second axis.

7. (Cancelled)

8. (Previously Presented) The engine of claim 1, wherein the first actuator yoke plate is rotated by the first drive actuator for pivoting the nozzle about the first axis; and the second actuator yoke plate is rotated by the first drive actuator for pivoting the nozzle about the second axis.

9. (Original) The engine of claim 8, wherein each said yoke plate includes:

a first end pivotably coupled to supporting structure;

a second end defining gear teeth engaged with a corresponding actuator gear; and

a pair of arms defining an opening and extending about the nozzle rim, the arms including bearing surfaces for transmitting lateral forces to the nozzle rim while permitting sliding contact with the nozzle rim.

10. (Original) The engine of claim 1, wherein the bendable duct is convoluted.

11. (Original) A mobile platform comprising the engine of claim 1.

12. (Previously Presented) A nozzle for a jet engine, the nozzle comprising:

a nozzle rim having a flange portion and an interior shoulder within the nozzle rim;

a bendable duct having an outlet end received within the nozzle rim adjacent the inlet shoulder, the bendable duct defining a conduit in which exhaust flow generated by the jet engine is received and delivered directly to the interior of the nozzle rim; and

at least one gimbal ring pivotably coupled to supporting structure and to the flange portion of the nozzle rim to allow pivoting of the nozzle rim relative to the gimbal ring about a first axis and pivoting of the nozzle rim relative to the supporting structure about a second axis for changing a vector at which the exhaust flow is discharged from the nozzle rim.

13. (Cancelled)

14. (Cancelled)

15. (Original) The nozzle of claim 12, wherein the first axis is generally perpendicular to the second axis.

16. (Original) The nozzle of claim 12, further comprising an actuation system for controllably pivoting the nozzle rim.

17. (Original) The nozzle of claim 16, wherein the actuator system includes:

a first actuator yoke plate for pivoting the nozzle about the first axis; and

a second actuator yoke plate for pivoting the nozzle about the second axis.

18. (Original) The nozzle of claim 17, wherein each said yoke plate includes:

a first end pivotably coupled to supporting structure;

a second end defining gear teeth engaged with a corresponding actuator gear; and

a pair of arms defining an opening and extending about the nozzle rim, the arms including bearing surfaces for transmitting lateral forces to the nozzle rim while permitting sliding contact with the nozzle rim.

19. (Original) The nozzle of claim 12, wherein the bendable duct is convoluted.

20. (Original) A mobile platform comprising the nozzle of claim 12.

21. (Previously Presented) A method of operating a jet engine, the method comprising:

using the jet engine to generate an exhaust flow;

receiving the exhaust flow in a bendable duct that is received within a nozzle rim for delivery of exhaust to a nozzle rim having a flange portion pivotably coupled to supporting structure with a two-axis gimbal joint;

discharging the exhaust flow from the nozzle rim; and

controllably pivoting the nozzle rim to change a vector at which the exhaust flow is discharged from the nozzle rim.

22. (Original) The method of claim 21, wherein the controllably pivoting comprises one or more of:

pivoting the nozzle rim about a first axis; and

pivoting the nozzle rim about a second axis generally perpendicular to the first axis.

23. (Original) The method of claim 22, wherein:

pivoting the nozzel rim about a first axis includes pivoting a gimbal ring pivotably coupled to the supporting structure and the nozzle rim relative to the supporting structure; and

pivoting the nozzle rim about a second axis includes pivoting the nozzle rim relative to the gimbal ring.

24. (Cancelled)

25. (Original) The method of claim 22, wherein the controllably pivoting comprises:

actuating a first actuator yoke plate to pivot the nozzle about the first axis; and

actuating a second actuator yoke plate to pivot the nozzle about the second axis.

26. (Previously Presented) A method of providing a jet engine with a thrust vectoring nozzle, the method comprising:

pivotably coupling a flange portion of a nozzle rim to supporting structure adjacent said jet engine, with a two-axis gimbal joint; and

coupling a bendable duct to an inlet shoulder within the interior of the nozzle rim and the engine for receiving and delivering an exhaust flow generated by the engine to the interior of the nozzle rim.

27. (Original) The method of claim 26, wherein the pivotably coupling comprises:

pivotably coupling at least one gimbal ring to supporting structure; and

pivotably coupling the nozzle rim into the gimbal ring.

28. (Previously Presented) The engine of claim 1, wherein the bendable duct is made of a material having good strength properties at a temperature of about 1800 degrees Fahrenheit.

29. (Previously Presented) The engine of claim 28, wherein the bendable duct material is sufficiently flexible to allow the duct to accept a degree of strain repeatedly without significant loss of strength due to fatigue from repeated bending.

30-31. (Cancelled)

32. (New) The engine of claim 1, further comprising:

a first ring support fixed to supporting structure;

a second ring support fixed to supporting structure opposite the first ring support;

wherein a first side of the gimbal ring is pivotally coupled to the first ring support, and a second side of the gimbal ring is pivotally coupled to the second ring support such that the gimbal ring is pivotally coupled on opposite sides to support structure.

33. (New) The engine of claim 32, wherein the first and second ring supports each comprise an elongated member projecting axially from supporting structure.

34. (New) The nozzle of claim 12, further comprising:

a first ring support fixed to supporting structure;

a second ring support fixed to supporting structure opposite the first ring support;

wherein a first side of the gimbal ring is pivotally coupled to the first ring support, and a second side of the gimbal ring is pivotally coupled to the second ring support such that the gimbal ring is pivotally coupled on opposite sides to support structure.

35. (New) The engine of claim 34, wherein the first and second ring supports each comprise an elongated member projecting axially from supporting structure.